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The Association between Audit Fees and Auditors' Opinions on Internal Control Weakness under Section 404 of the SOX

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Auditor's Attestation of Internal Control and Audit Fees

Abstract

The Section 404 of Sarbanes-Oxley Act (SOX) requires top management to establish, maintain, and regularly evaluate the effectiveness of the internal control over financial reporting (ICOFR), and obtain an auditor's attestation. In this paper, we identify 232 firms that received "Ineffective" audit opinion on the effectiveness of ICOFR due to one or more material weakness in internal control (WIC). We examine the association between audit fees and the WIC for pre- and post-SOX period. We find that highly levered clients with the WIC paid greater audit fees even in the pre-SOX period and continuously paid the high fees in post-SOX period, whereas the loss-making clients with WIC paid higher fees only in post-SOX period. We also find evidence that the Big 4 auditors charged higher audit fees for firms with WIC, compared with the fee charged by non-Big 4 auditors for firms with WIC. These findings suggest that auditors, in terms of their behaviours and pricing mechanism, responded to the legal liability environment changes caused by SOX.

Keywords: *Internal Control, Audit services, Audit fees, Sarbanes-Oxley Act*

Auditor's Attestation of Internal Control and Audit Fees

1. Introduction

In response to a series of corporate scandals, the U.S. congress passed Sarbanes-Oxley Act of 2002 (SOX) in an attempt to restore the investors' confidence. One of the most salient reforms in the SOX is related to firms' internal controls over financial reporting (ICOFR). Section 404, which became effective for fiscal years ending after Nov 2004 for most public firms, requires the management to assess the effectiveness of the company's ICOFR and report its conclusion in the company's annual reports. Section 404 also requires its auditor to review management's assessment and also report its own conclusion regarding the effectiveness of the company's ICOFR.

We obtained auditors' opinions on the effectiveness of the ICOFR for our samples firms from recently filed 10-K reports and identified material weakness in internal controls for the firms that received an "Ineffective" opinion from the auditor on the effectiveness of ICOFR. We begin with our study by first investigating whether material weaknesses in the ICOFR (henceforth WIC) are priced in the audit fee-setting process. We expect the WIC to be priced for two reasons. First, auditors apply more engagement effort toward detecting possible instances of earnings manipulation or accounting errors and therefore charge higher audit fees for the firms that have a WIC. Second, by charging higher average billing rates to cover the potential incremental costs associated with conducting, staffing, and managing these engagements, auditors may try to compensate their exposure to litigation or reputation declines associated with material weaknesses in internal control.

Second, this study examines whether the association between the WIC and audit fees becomes stronger after the passage of the SOX (i.e., post-SOX period). This

test allows us to infer how the effect of auditors' assessment of ICOFR on the audit fees is associated with a shift in the legal environment in the U.S. by the enactment of the SOX. Third, we hypothesize that the impact of the WIC on audit fees is differential across the clients, depending on the client-specific risk characteristics. We expect that the impact would be exacerbated for high litigation risk clients because in the presence of a similar level of WIC, auditors' exposure to potential legal liability would be higher when their clients are subject to greater litigation risks. Fourth, we investigate whether the effect of the WIC on audit fees is related to auditor size. We expect Big 4 auditors to require higher audit fees for the clients with WIC because of their potentially higher reputation loss and legal loss due to their perceived "deeper pockets" for the similar level of WIC, compared with non-Big 4 auditors. Finally, we examine whether the association between WIC and audit fees is stronger when the nature of material weakness is related to firm-level controls, rather than specific account-level or transaction-level controls which may be more "auditable." Although there have been several studies on the WIC (e.g., Ashbaugh et al., 2005; Doyle et al., 2005; Ge and McVay, 2005; Hammersley et al., 2005; Hogan and Wilkins, 2005; Krishnan, 2005), we have little evidence on these issues as they mostly focus on the determinants of internal control deficiencies, the effects on earnings quality, and the market reactions to such disclosures.

Using audit fee data for the period of 2000~2004 and the auditors' reports filed from February 2005 to May 2005, we find that the material weaknesses in internal control reported in their auditors' opinions in response to Section 404 of SOX are positively associated with audit fees paid and that the positive relation is mostly driven by the association in the post-SOX period (year 2003 and 2004), compared with pre-SOX period (year 2000~2002). We also document the interaction between

some client-specific risk variables and the WIC has an incrementally significant and positive effect on audit fees. More specifically, we find that highly levered clients with the WIC paid greater audit fees starting even in the pre-SOX period and continuously pay high fees throughout 2003 and 2004, whereas the loss-making clients with WIC pay higher fees only in post-SOX period. We also find evidence that the Big 4 auditors charge higher audit fees for the clients with WIC, compared with non-Big 4 auditors, but it is not clear when they started to charge higher fees, pre- or post-SOX periods. However, different from our prediction, we could not find an incremental effect of the material weaknesses in firm-level controls on audit fees, indicating that both firm-level and specific account-level (or transaction-level) controls are important control structures that affect auditors' fees.

This paper makes several contributions to our understanding of auditors' attestation to internal control over financial reporting and their fees. First, we first employ the internal control data from auditors' reports in the period after Section 404 became effective while other prior studies use the sample of internal control deficiencies disclosed under management assessment in response to Section 302 of the SOX. To the extent that auditors set their audit fees mainly based on their assessment of the effectiveness of clients' ICOFR, we believe using the WIC data opinioned by auditors will reduce potential bias from the assessment difference between auditors and clients in the study of the WIC and audit fee relations. Second, this study provides evidence that internal control weakness is an important determinant of audit fees. While such a relation has been suggested in various textbooks, this fundamental driver of audit fees has never been empirically tested to date. This study recognizes a cross-sectional variation in the quality of internal control and explicitly takes it into account as a determinant of audit fees. Third, this

study sheds some light on the extent of the auditor's reliance on internal controls to reduce substantive procedures. Since the substitution between tests of controls and substantive tests is made purely on cost/benefit grounds (see AICPA [1993, AU section 319.44]), even when controls are excellent, the link between internal controls and accounting irregularities may not be quite as strong as regulators believe. We investigate how the audit function may affect the mapping of material weaknesses in internal control into audit efforts, audit risk assessments and subsequently audit fees. Fourth, we provide evidence on the impact of material weaknesses in internal control as an additional type of litigation risk. Simunic and Stein (1996) suggest that audit fees do reflect variations in litigation risk based on the archival evidence. However, prior research has generally ignored the quality of internal control in the auditor's litigation risk assessment process since the internal control data was not available until Section 404 of SOX became effective. Our study provides empirical support for the internal control risk in addition to other risks examined in other prior studies and show that auditors change their audit fee structure based on WIC and client-specific risks. It is also interesting to find that auditors do not uniformly charge higher fees for all clients with WIC, but change the fees based on firm-specific risks In this respect, the findings of our study suggest how the auditors, in terms of their behaviours and pricing mechanism, respond to the legal liability environment changes caused by SOX. The findings of this study can also be applied to different kinds of regulation changes such as Private Securities Litigation Reform Act of 1994, or cross-listing or incorporation via direct investment or partnership in foreign countries with different legal environments.

The remainder of the paper is structured as follows: In section 2, we briefly discuss the new requirements on internal control disclosures and attestation to

implement Sections 302 and 404 of the SOX of 2002 and prior studies related to internal control issues. Section 3 presents hypotheses development and section 4 describes our sample selection and empirical analysis procedures. In section 5, we present our empirical results. Section 6 exhibits the results of further analyses on the association of the auditor's attestation and audit fees. The final section concludes the paper.

2. Internal Control over Financial Reporting and Audit Fees

2.1 Background

By a string of corporate reporting scandals from late 2001, the credibility of public company's financial reporting and investors' confidence in the accounting information have been severely eroded. In response, Congress passed the SOX of 2002 which contains a variety of accounting-related reforms to improve the integrity of financial reporting and thus to restore public confidence. One element of the reforms is related to the ICOFR reflected in Sections 302 and 404 of the SOX.[1]

Section 302, which became effective for quarterly and annual reports covering periods that end after August 29, 2002, states that chief executive officers (CEO) and chief finance officers (CFO) are directly responsible for the accuracy, documentation and submission of all financial reports as well as the internal control structure to the Securities and Exchange Commission (SEC). It requires that the CEO and CFO evaluate the design and effectiveness of internal controls and disclose any known material weakness, fraud, and changes in controls that are likely to have a material

[1] Internal control is defined by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) as a process – effected by directors, management, and other personnel – designed to provide reasonable assurance of the achievement of objectives in: 1) effectiveness and efficiency of operations, 2) compliance with applicable laws and regulations, 3) safeguarding of assets, and 4) reliability of financial reporting. Sections 302 and 404 of the SOX mainly focus on the objectives related to 4), and this subset of internal control is commonly referred to as ICOFR.

effect on financial statements in the future. Section 404, which became effective for fiscal years ending after November 15, 2004 for accelerated filers,[2] has two main parts: Section 404(a) describes management's responsibility for maintaining an adequate internal control structure and procedures for financial reporting as well as responsibility for assessing the effectiveness of ICOFR. Section 404(b) mainly describes the auditor's responsibility for attesting to reporting on management's internal control assessment and to the effectiveness of ICOFR.

Section 302, unlike Section 404, required relatively less extensive investigations (e.g., no detailed procedures) and assessments by management and more importantly no audit procedures by the auditor. Along with Section 404, the Public Company Accounting Oversight Board has adopted Auditing Standard No. 2, *An Audit of Internal Control Over Financial Reporting Performed in Conjunction With an Audit of Financial Statements*, which requires an integrated audit of the financial statements and ICOFR, resulting in two separate objectives: 1) to express an opinion on whether the financial statements are fairly stated, and 2) to express separate opinions on management's assessment *and* the effectiveness of the ICOFR. Throughout the Standard, the auditor's attestation to the internal control is referred to as the audit of ICOFR. In the process of ICOFR audit, the auditor must obtain evidence about whether ICFOR is effective by evaluating management's assessment process, identifying significant accounts, relevant assertions, and significant processes, and evaluating and testing the design of internal controls.

[2] A non-accelerated filer (a U.S. company with market capitalization less than $75 million that has filed at least one annual report with the SEC) must first comply with the SOX 404 requirements for its first fiscal year ending on or after July 15, 2007. The extension does not apply to a foreign private issuer that is an accelerated filer and that files annual reports on Form 20-F or Form 40-F; such an issuer must begin to comply with the internal control over financial reporting and related requirements in the annual report for its first fiscal year ending on or after July 15, 2006. We exclude non-accelerated filers and foreign firms from our sample.

The auditor's report must include two opinions on the ICFOR: one on management's assessment of ICOFR and one on the effectiveness of ICOFR. The auditor is not permitted to conclude that the company's ICFOR is effective if there are one or more material weaknesses in the registrant's internal control. In the event of a material weakness, the auditor could express an unqualified opinion (i.e., "fairly stated") on management's assessment, so long as management properly identified the material weakness and concluded in their assessment that internal control was not effective. If the auditor concludes a material weakness exists but management does not and therefore makes the conclusion in its assessment that internal control is effective, the auditor would render an adverse opinion on management's assessment.[3]

2.2 Prior research

After the passage of the SOX of 2002, there have been several studies that investigate the issues of internal controls, and all of them have found their evidence based on the data on the WIC disclosed under Section 302.

For example, Ge and McVay (2005) find that disclosing internal control weakness is positively associated with business complexity (e.g., multiple segments and foreign operation), negatively associated with firm size (e.g., market capitalization) and profitability (e.g., return on assets). Doyle et al. (2005) also report similar determinants of weakness in the ICOFR and show that firms with the WIC have lower earnings quality, as measured by the extent to which accruals map into cash flows. Ashbaugh et al. (2005) document that firms with more complex operations, recent changes in organization structure, more accounting risk exposure

[3] Among our 232 sample firms that received the auditor's "Ineffective" opinion on the ICOFR, only two firms received "not fairly stated" opinion on management assessment of the effectiveness of ICOFR and all the others received an unqualified opinion. This indicates that prior to the issuance of the opinion, the auditor and management have agreed on significant deficiency or material weakness in ICOFR in most cases once Section 404 is enacted.

and less investment in internal control systems are more likely to disclose WIC. They also find that firms disclosing a WIC have greater abnormal accruals and more frequent restatements of financial restatements to their industry peers, consistent with the notion that the WIC results in low quality accounting information.

Three other studies examine the market's price reactions to management's disclosure of WIC under Section 302 and find overall negative market reactions. DeFranco et al. (2005) and Beneish et al. (2005) find cumulative size-adjusted returns of -1.8 percent and -1.73 percent over the three day window surrounding the disclosure, using 102 and 336 firms disclosing a WIC, respectively. Similarly, Hammersley et al. (2005) find negative size-adjusted returns and increased trading volume when the WIC is disclosed in 52 uncontaminated sample firms.

Krishnan (2005) studies the relation of characteristics of audit committee and the occurrence of the WIC for the firms that change auditors. This study is based on the data even before the enforcement of Section 302 of SOX as firms that change their auditors were required to disclose information on the internal control weakness (if any) pointed out by the predecessor auditor when they file 8-K to SEC. Krishnan (2005) find that clients with more independent and expert audit committees are less likely to have a WIC.

There has been little empirical evidence on how the WIC is associated with audit fees. We observe only one study by Hogan and Wilkins (2005) which find that a previous year's audit fees of firms that disclosed internal control deficiencies under Section 302 are higher, which is similar to our results, but the abnormal discretionary accruals for those firms not significantly higher. They suggest that auditors constrain potential earnings management for firms with severe internal control weakness by increasing their level of testing.

Our study differs from their study in several points. First, we employ the material weakness data under Section 404 which will reduce potential bias from the assessment difference between auditors and clients in the association between the WIC and audit fees. Second, we use a longer period of audit fee data covering the year 2004 (when auditors were required to express audit opinion on ICFOR for the first time) and the previous four years while they examine only a previous year's audit fees. Using a longer period audit fee data, we investigate possible changes in the association between the WIC and audit fees over the years in the pre- and post- SOX periods. Another additional contribution is that we examine how the effect of the WIC on the audit fees cross-sectionally differs, depending on the client-specific litigation risks, auditor size, and the severity (i.e., the number of weakness in various categories) and the nature of the weakness. This allows us to determine whether an increase in audit fees is due to the uniform increase of the fees for all the firms with the WIC or the increase in differential magnitude for the clients with various risk levels, auditors, and characteristics of weakness.

3. Hypotheses Development

The passage of the SOX resulted in substantial changes in the duties and responsibilities of the auditors of public companies. Specifically, Section 404 significantly altered the overall scope and quality of audit by requiring an integrated audit of the financial statements and the internal control systems from 2004. Accordingly, anecdotal evidence to date indicates that the audit fees paid by SEC registrants increased substantially after the passage of SOX.[4]

[4] For example, Financial Executives International indicated in its Jan. 2004 survey an increase in audit fees for the company in the survey of $591,000 due to Section 404 compliance, an increase of 38% over pre-Section 404 levels, which was later updated in its July 2004 survey to $823,200, or an increase of 92.5% over pre-Section 404 levels.

The audit fee determinants literature dates back to Simunic (1980). His model of audit pricing specifies audit fees as a function of the expected costs of conducting the audit including a normal profit margin plus the expected costs of their business (litigation) risk. Formally, his model can be denoted as:

$$E(tc) = cq + E(d)* E(r) \quad (1)$$

where E(tc) is total expected cost to the auditor or the audit fees; c is per unit cost of external auditor resources; q is quantity of resources used by the auditor in performing the audit examination; E(d) is expected present value of possible future losses due to undetected material misstatements in this period; E(r) is expected likelihood that the auditor will be liable from future litigation associated with undetected material misstatements in this period. This model has been widely used in audit research to examine whether auditors price litigation costs as well as their effort costs when they set audit fees, and the such studies mostly find positive relationships between litigation risk and audit fees.[5]

On the other hand, the audit risk model described in SAS #47 states that overall audit risk of the auditor is determined as follows:

$$AR = IR * CR * DR \quad (2)$$

where AR is audit risk; IR is inherent risk (the risk that material misstatements will occur, assuming no related internal controls); CR is control risk (the risk that material misstatements will not be prevented or detected by the internal controls); DR is detection risk (the risk that the auditor will not detect a material misstatements).

Traditionally, auditors perform the test of control to examine whether the internal control system in the client firm has been properly designed to prevent or detect material misstatements. If auditors conclude that the control risk is high,

[5] Please refer to Pratt and Stice (1994), Simunic and Stein (1996), Seetharaman et al. (2002), and Lyon and Maher (2005).

auditing standards require auditors to perform additional substantive audit tests, and such additional tests may increase the auditor's effort costs (i.e., the first component in Eq.(1), cq). Moreover, the audit firm may use an engagement team with more industry-specific experience if any WIC in complex situations requires a high level of audit knowledge and experience in detecting misstatements (Johnstone and Bedard 2003), and such audit team may charge higher billing rates to the clients. In those cases, the first component in Eq.(1), cq, will go up. Alternatively, the high control risk may motivate auditors to charge an insurance premium to cover possible future losses associated with undetected misstatements (Bell, Landsman, and Shackelford 2001).[6] Prior research on audit fees has demonstrated that audit fees are sensitive to conditions that increase an auditor's risk.[7] If an auditor is to earn risk-adjusted returns on an engagement, a greater audit risk due to the WIC should result in a higher risk premium charge. Taking together, we propose the following hypothesis in alternative form:

H1: Other thing equal, there is a positive association between material weakness in internal control and audit fees.

Seetharaman et al. (2002) show that auditors of UK firms charge higher fees for their services when their clients are cross-listed on the U.S. market. They argue that the auditor's assessment of the litigation risk is influenced by the general legal environment where the client operates as well as other client-specific factors. The enactment of SOX and other accompanying accounting and auditing regulations resulted in a non-trivial shift in the legal environment in the U.S.[8] With similar

[6] Charging an insurance premium may also be combined with additional substantive tests.

[7] Using an experimental design, Houston et al. (1999) find that the presence of accounting choices reflecting higher risks of accounting irregularities, leads to higher litigation risk assessments and fee premiums.

[8] For example, by Title VIII, "Corporate and Criminal Fraud Accountability Act of 2002", Auditors are required to maintain all audit or review work papers for five years. Title IX, "White Collar Crime

arguments to Seetharaman et al., one can reasonably posit that auditors' assessment of E(d) and E(r) will shift upward (i.e., higher litigation loss assessment) around or following the passage of the SOX, leading to an increase in audit fees.[9] Moreover, the increase in audit fees as a result of the change in the litigation environment may be greater for the clients with the WIC because in order to avoid the higher expected legal liability loss, the auditors of such clients may have to provide more extensive substantive tests and/or alternatively charge a higher insurance premium after the passage of the SOX. Thus, we propose the second hypothesis as:

H2: Other thing equal, the positive association between material weakness in internal control and audit fees is stronger after the passage of the SOX.

An auditor's assessment of E(d) and E(r) may vary across the clients depending on the level of the client litigation risk because of the fact that a portion of such risk is borne by the auditor. Specifically, Palmrose (1997) shows that auditor litigation often occurs when the client is financially distressed. Although it is difficult to predict financial failure of the client, researchers often use profitability, leverage, and presence of net losses, among others, to proxy for the litigation risk of the clients. One can posit that an auditor's assessment of E(d) and E(r) will be higher when the clients are exposed to a higher litigation risk. In such case, for clients with the WIC, the auditors may have to increase the level of substantive testing or charge a higher fee premium to compensate for their higher expected future litigation loss, leading to an audit fee increase. Similarly to H2, we predict that the higher audit fee for the clients with weak internal control combined with a high litigation risk will be more

Penalty Enhancements" increased the maximum criminal penalty for mail and wire fraud from 5 to 10 years.

[9] In addition, additional audit effort required to attest to the effectiveness of the client's internal control system will be another possible reason for the audit fee increase.

prominent in the post-SOX period in which auditors' overall legal responsibility and liability is higher. This leads to:

H3: Other thing equal, the positive association between material weakness in internal control and audit fees is stronger for the clients with higher litigation risk. The stronger association is greater after the passage of the SOX.

Another consequence of audit failure is the auditor's reputation loss. When auditors' reputation is impaired, they incur revenue losses resulting from a difficulty to attract new clients and to retain existing clients as well as reduced audit fees (e.g., Firth 1990). Prior research shows that auditors with superior reputation, namely the Big 4 auditors, charge higher fees (e.g., Craswell et al. 1995), enjoying the rent on their superior reputation (e.g., Herbig and Milewicz 1995). Accordingly, it is more important for the Big 4 auditors than other auditors to protect their positive reputation when clients likely damage their reputation. Consequently, in the presence of WIC, the Big 4 auditors may perform a higher level of substantive tests to protect their brand name reputation and/or charge a higher premium. Moreover, the Big 4 auditors are more likely sued and suffer larger damage awards because of their perceived "deeper pockets," so litigations are more costly for them (e.g., Khurana and Raman 2004). This leads us to propose the following hypothesis:

H4: Other thing equal, the positive association between material weakness in internal control and audit fees is stronger for firms audited by Big 4 auditors. The stronger association is greater after the passage of the SOX.

It is possible that the effect of material weaknesses of internal control on audit fees may vary with the nature of material weaknesses. Moody's proposes that material weaknesses fall into one of two categories. Type "A" material weaknesses relate to controls over specific account balances or transaction-level processes. Moody's suggests that these types of material weaknesses are "auditable," and thus do not

represent as serious a concern regarding the reliability of the financial statements. Type "B" material weaknesses, however, relate to company-level controls such as the control environment or the overall financial reporting process, which auditors may not be able to effectively "audit around." Moody's suggests that Type B material weaknesses call into question not only management's ability to prepare accurate financial reports but also its ability to control the business.

For Type A, despite material weaknesses, we expect that auditors may take corrective actions with additional work in the audit procedures because such control problems appear to be specific, localized and correctable within a short period. On the other hand, company-level control problems would be difficult to "audit around," and more serious financial reporting problems would be related to them. We predict that company-level weaknesses in internal control will have higher audit fees as this type of material weakness may severely affect auditors' potential legal losses.

H5: Other thing equal, the positive association between material weakness in internal control and audit fees is stronger when the nature of material weakness is related to firm-level controls. The stronger association is greater after the passage of the SOX.

4. Methodology

4.1 Empirical model

Building upon the results of prior studies (Chaney et al., 2004; Choi et al., 2005; Craswell et al., 1995; DeFond et al., 2002; Francis and Stokes, 1986; Frankel et al., 2002; Sankaraguruswamy and Whisenant, 2003; Simunic, 1980; Simunic and Stein, 1996), we posit the following audit fee model to test our Hypotheses 1 and 2:

$$\begin{aligned} AFEE = {} & \alpha_0 + \alpha_1 IC + \alpha_2 (IC * YR0304) + \beta_1 LEVE + \beta_2 LOSS + \beta_3 ROA \\ & + \beta_4 BIG4 + \gamma_1 LNTA + \gamma_2 NBS + \gamma_3 NGS + \gamma_4 EMPLOY \\ & + \gamma_5 INVREC + \gamma_6 ISSUE + \gamma_7 BTM + \gamma_8 FOREIGN + \gamma_9 EXORD \\ & + \gamma_{10} AUDCHG + \gamma_{11} LAMDA + \text{industry and year dummies} + \text{error term} \end{aligned} \quad (1)$$

where, for client firm j and in year t:

AFEE	=	natural log of fees paid to auditors for their financial statement audits (i.e., audit fees) in thousand dollars;
IC	=	Either *IC_D* or *IC_C*; *IC_D* = 1 if the client receive internal control weakness opinion from auditor, 0 otherwise; *IC_C* = natural log of one plus the number of categories that the clients receive internal control weakness opinion;
YR0304	=	1 if the fiscal year is 2003 or 2004, 0 otherwise;
LEVE	=	leverage (total liabilities divided by total assets), windsorized at 5;
LOSS	=	1 if the firm reported a loss during the year, 0 otherwise;
ROA	=	return on assets (income before extraordinary items divided by average total assets);
BIG4	=	1 if the auditor is one of Big 4, 0 otherwise;
LNTA	=	natural log of total assets in thousand dollars;
NBS	=	natural log of one plus number of business segments;
NGS	=	natural log of one plus number of geographic segments;
EMPLOY	=	square root of the number of employees;
INVREC	=	inventory and receivables divided by total assets;
ISSUE	=	1 if the sum of debt or equity issued during the past 3 years are more than 5% of the total assets, 0 otherwise;
BTM	=	book-to-market ratio, windsorized at 0 and 4;
FOREIGN	=	1 if the firm pays any foreign income tax, 0 otherwise;
EXORD	=	1 if the firm reports any extraordinary gains or losses, 0 otherwise;
RNDTA	=	research and development expenditure (*Compustat* data item number 46) divided by total assets;
AUDCHG	=	1 if the incumbent auditor is different from the last year's auditor, 0 otherwise;
RAMDA	=	inverse Mills ratio for endogenuity to receive internal control weakness opinion.

In the above, all independent variables are measured as of the end of fiscal year unless otherwise noted. The variables, *LNTA* and *EMPLOY*, are used as proxies for client size, while the variable, *NBS, NGS*, *INVREC*, *FOREIGN*, *EXORD,* and *RNDTA* as proxies for the scope and complexity of a client firm's business. The demand for audit services is likely to increase with firm size (*LNTA* and *EMPLOY*) and the extent of business diversification (*NBS* and *NGS*). We expect that audit fees are positively associated with these variables. Audit fees are likely to be higher for clients with more complex business operations. We therefore expect that the variables representing client complexity, *INVREC*, *FOREIGN*, *EXORD*, and *RNDTA* are positively associated with audit fees. In short, all coefficients on the aforementioned variables are expected to be positive.

We also include *AUDCHG* to represent the low-balling of new auditors (Sankaraguruswamy and Whisenant 2003). Thus, a negative sign is expected for the *AUDCHG*. We include *ISSUE* and *BTM* to capture the effect of a client firm's growth potential on audit fees. Growing firms are more often involved in external financing such as equity and bond offerings. The demand for both audit and non-audit services is greater for high-growth firms than low-growth firms. In addition, firms involved in equity and debt offerings are in a greater need of audit services (Reynolds et al. 2004). We therefore expect a positive (negative) coefficient on *ISSUE* (*BTM*).

It is possible that the clients firms receive internal control weakness opinions (ICWO) from auditors are essentially different from the others (Ashbaugh et al. 2005; Doyle et al. 2005). To control this endogeneity problem, we first run probit ICWO

model and calculate the inverse Mills ratio. We include the inverse Mills ratio (*LAMDA*) in Eq. (1) to control for the problem.[10]

In Eq. (1), we also include *LOSS*, *LEVE*, and *ROA*, to proxy for a client's risk characteristics. Since auditors charge higher fees for risky clients (Simunic and Stein 1996), the coefficients on *LOSS* and *LEVE* are predicted to be positive while that on *ROA* is negative. We include *BIG4* to capture the effect of audit quality differentiation on audit fees. A positive coefficient on *BIG4* means the existence of fee premiums for the superior quality, prestigious auditors, namely Big 4 (previously 8, 6, or 5).

Our variable of interest is *IC* and the interaction between *IC* and *YR0304*. We measure *IC* in two different ways. The first measure (*IC_D*) is a dummy variable that has a value of 1 if the client firm receive ICWO at fiscal year 2004, and 0 otherwise. The second measure (*IC_C*) is a continuous variable that has a value of the natural log of one plus the number of categories that the client firm receives ICWO from auditor at the same time. Thus, if the firm that receive ICWO pay higher audit fees as suggested by Hypothesis 1, the coefficient of the *IC* would be positive. In addition, if there exist any fee increases for those firms after year 2002 as suggested by Hypothesis 2, the coefficient of the interaction term between *IC* and *YR0304* would be positive too.

To examine Hypotheses 3 and 4, we use the following model:

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[10] Following Ashbaugh et al. (2005) and Doyle et al. (2005), we run the following first stage model.

$$IC\_D = a + \beta_1 LNTA + \beta_2 GROWTH + \beta_3 INVTA + \beta_4 LOSS + \beta_5 ROA + \beta_6 NBS + \beta_7 NGS + \beta_8 FOREIGN + \beta_9 MA + \beta_{10} RESTRUCT + \beta_{11} BIG4 + \beta_{12} AUDCHG + \beta_{13} OWNERSHIP + \beta_{14} LITIG\_IND + error\ terms$$

where, *GROWTH* is the assets growth from year t-1 to year t scaled by the assets of year t-1; *INVTA* is inventory divided by total assets, *MA* is merger and acquisition dummy that has a value of 1 if the firm has any merger and acquisition activity in the year, and 0 otherwise; *RESTRUCT* is dummy variable if the firm's restructuring cost is higher than 1 percent of the sales; *OWNERSHIP* is a measure of ownership concentration (1- [1,000 * (# of shareholders / # of outstanding shares)]); *LITIG_IND* is the litigious industry dummy variable. The definitions of other variables are the same as before. We also repeat the tests (i) after removing insignificant independent variables, and (ii) after removing the variables that are already included in Eq. (1), but the results are always similar.

$$
\begin{aligned}
AFEE = {} & \alpha_0 + \alpha_1 IC + \alpha_2 (IC * YR0304) \\
& + \beta_1 LEVE + \beta_2 (LEVE * IC) + \beta_3 (LEVE * IC * YR0304) \\
& + \beta_4 LOSS + \beta_5 (LOSS * IC) + \beta_6 (LOSS * IC * YR0304) \\
& + \beta_7 ROA + \beta_8 (ROA * IC) + \beta_9 (ROA * IC * YR0304) \\
& + \beta_{10} BIG4 + \beta_{11} (BIG4 * IC) + \beta_{12} (BIG4 * IC * YR0304) \\
& + \gamma_1 LNTA + \gamma_2 NBS + \gamma_3 NGS + \gamma_4 EMPLOY + \gamma_5 INVREC + \gamma_6 ISSUE \\
& + \gamma_7 BTM + \gamma_8 FOREIGN + \gamma_9 EXORD + \gamma_{10} AUDCHG + \gamma_{11} LAMDA \\
& + industry\ and\ year\ dummies + error\ term
\end{aligned}
\tag{2}
$$

Compared with Eq. (1), we add the interaction terms with *IC* and three firm-specific risk variables (*LEVE*, *LOSS*, and *ROA*) as well as Big 4 auditor indicator variable (*BIG4*). In addition, we add three-way interactions among *IC*, the four variables (*LEVE*, *LOSS*, *ROA*, and *BIG4*) and a year 2003 and 2004 dummy variable (*YR0304*).[11] Thus, as predicted by Hypothesis 3, if auditors charge higher fees even before the enforcement of the SOX for risky firms that receive the ICWO in year 2004, the interaction terms between *IC* and risk variables would be positive. Additionally, if the auditor starts to charge even higher fees after year 2002, the three three-way interactions terms would be positive too.[12] Similarly, the interaction term between *IC* and *BIG4* would be positive if Big 4 auditors charge higher fees for the clients that receive the ICWO as predicted by Hypothesis 4 and the three-way interaction between *IC*, *BIG4*, and *YR0304* would be positive if the Big 4 auditors fee premium for the firms with WIC changes more from year 2003.

To examine Hypothesis 5, we use the following model.

$$
\begin{aligned}
AFEE = {} & \alpha_0 + \alpha_1 IC + \alpha_2 (IC * TYPEA) + \alpha_3 (IC * YR0304) \\
& + \alpha_4 (IC * YR0304 * TYPEA) + \beta_1 LEVE + \beta_2 (LEVE * IC) \\
& + \beta_3 (LEVE * IC * TYPEA) + \beta_4 (LEVE * IC * YR0304) \\
& + \beta_5 (LEVE * IC * YR0304 * TYPEA) + \beta_6 LOSS + \beta_7 (LOSS * IC)
\end{aligned}
$$

[11] We choose year 2003 as the cutoff year to make the dummy variable *YR0304*. Even though the SOX was enforced from November 2002, the year-by-year analyses reveal that there exist clear coefficients differences between the period until 2002 and the period after year 2002. The results of year 2002 is more similar to those of year 2000 or 2001 in the year-by-year analyses than those of year 2003 or 2004. Thus, we select year 2003 as the cut-off year. This result suggests that it took about 1 year for the SOX to change the pricing mechanism of the auditors.

[12] For empirical analyses, we also perform tests without yearly dummy variables because the variables could have strong multi-collinearity with *YR0304* variable. Without the dummies, our documented relationships become stronger but all the inferences remain the same.

$$
\begin{aligned}
&+ \beta_8 (LOSS * IC * TYPEA) + \beta_9 (LOSS * IC * YR0304) \\
&+ \beta_{10} (LOSS * IC * YR0304 * TYPEA) + \beta_{11} ROA + \beta_{12} (ROA * IC) \\
&+ \beta_{13} (ROA * IC * TYPEA) + \beta_{14} (ROA * IC * YR0304) \\
&+ \beta_{15} (ROA * IC * YR0304 * TYPEA) + \beta_{16} BIG4 + \beta_{17} (BIG4 * IC) \\
&+ \beta_{18} (BIG4 * IC * TYPEA) + \beta_{19} (BIG4 * IC * YR0304) \\
&+ \beta_{20} (BIG4 * IC * YR0304 * TYPEA) + \gamma_1 LNTA + \gamma_2 NBS + \gamma_3 NGS \\
&+ \gamma_4 EMPLOY + \gamma_5 INVREC + \gamma_6 ISSUE + \gamma_7 BTM + \gamma_8 FOREIGN \\
&+ \gamma_9 EXORD + \gamma_{10} AUDCHG + \gamma_{11} LAMDA \\
&+ industry\ and\ year\ dummies + error\ term
\end{aligned}
\tag{3}
$$

Compared with Eq. (2), the above Eq. (3) has interactions between *TYPEA* variable and all the other variables of interests. The *TYPEA* variable has a value of 1 if the WIC belongs to type A and 0 otherwise. Thus, if the audit fee effect of type A weakness is different from the others, at least one of the interaction term would be significantly different from zero.

4.2 Sample and data sources

We obtain audit (and non-audit) fee data from the 2005 *Audit Analytics* database. We retrieve all the other financial data from the 2005 *Compustat* Industrial annual file. The sample period for this study is restricted to the four-year period from 2000 to 2004 because the *Audit Analytics* includes audit fee data starting from 2000,[13] and the current version of the database includes the data only up to fiscal year 2004. We exclude the data from financial industry because the audit fee structure of the firms belong to the industry could be very different from firms belong to other industries.

The data on the auditor's opinion on internal control weakness of the clients are hand-collected via the search of 10-K reports filed to SEC. We search for *EDGAR* database of SEC to find the all the sample firms that the fiscal year-end finishes

[13] The SEC's Final Rule S7-13-00 (Revision of the Commission's Auditor Independence Requirements) requires registrants to disclose information about fees paid to the auditor in proxy statements filed on and after February 5, 2001.

between November 2004 and February 2005 (inclusive). Section 404 became effective for annual reports covering periods that starting 2004 fiscal year. We also search for PricewaterhouseCoopers (PwC), which began collecting internal control reports from all SEC filings in 2005, not only those reported in 10-K filings. PwC grouped each of the material weaknesses into one of 22 categories.

As a result, we find a total of 232 firms that receive the internal control weakness opinion in our sample, which is about 10.27% out of total sample. The total sample size is 9,087 firm-year observations. The sample include 1,058 firm-year observations from 232 firms that received ICWO during the period, and other 8,029 firm-year observations that received non-ICWO during the same period.

5. Empirical results

5.1 Descriptive statistics

Table 1 presents descriptive statistics for the variables used in this study. With respect to the results presented in Table 1, the following are noteworthy: First, the average *AFEE* (natural log of audit fees in thousand dollars) during our sample period is 6.0176 which is translated into $ 410,592. We will further discuss on the audit fee changes and differential fees between the clients firms that receive ICWO and the other firms in Table 4. Second, we measure the ICWO in two different ways; a dummy variable (*IC_D*) and a continuous variable (*IC_C*). We will further discuss on the ICWO in Table 2. Finally, the distributional properties of other variables are, overall, comparable with those reported in other recent audit fee related studies (e.g., Frankel et al., 2002; Ashbaugh et al., 2003; Choi et al., 2005). Note that *LEVE* (*ROA*) are windsorized at 5 (–5) [about extremely large (small) 1%] in order to remove the influence of a few extreme outliers. Similarly, the *BTM* is also windsorized at 0 and 4.

When we perform tests to examine if there exist any statistical differences in these control variables between firms that receive ICWO and the others, we find many of the differences are significant. It implies that, as pointed out by Ashbaugh et al. (2005) and Doyle et al. (2005), the firms that receive ICWO are essentially different firms from the other firms that do not receive ICWO. To control for this endogeneity problem, we include inverse Mills ratio for the ICWO in the regression model using two stage procedures.

[INSERT TABLE 1 ABOUT HERE!]

5.2 Statistics on weakness in internal control

Table 2 reports the statistics on WIC. The Panel A of Table 2 reports the number of firms and firm-year observations that receive or do not receive ICWO from auditors. A total of 2,454 firms are included in our dataset as reported in the bottom-left row of the table. Among them, 89.73% of firms do not receive ICWO and the remaining 10.27% of the firms receive ICWO. Similarly, among 9,087 firm-year observations from year 2000 to 2004 as reported in the bottom-right row of the table, 88.36% of the observations do not receive ICWO and the remaining 11.64% of the observations receive the opinion. Panel A also reports the number of the categories of WIC that the client firms receive from auditors. For example, 28 client firms (121 observations) receive the opinion from auditors that only one WIC exists for the firm, whereas 6 clients firms (25 observations) receive the opinion that the firms have 10 weaknesses in the internal control system.

Panel B of Table 2 reports the category of ICWO. We collect a total of 26 different kinds of WIC categories mentioned in the audit report. Among them, the most frequent weakness is related to ‘application of GAAP and accounting policies’,

which occupies 32.61% among the entire ICWO.[14] The closest second weakness is related to 'review of transactions' which is about 32.42% out of total ICWO. Because some of the weakness rarely occurs, we separately demonstrate the frequency for 15 different categories in Panel B and combine all the other 11 categories to 'others.' About 31.47% of the WIC belong to the 'others' category. Because the firms that receive ICWO in multiple categories may pay higher audit fee premiums, we use both the dummy variable *IC_C* and continuous variable *IC_D* to examine the effect of the multiple weaknesses.

[INSERT TABLE 2 ABOUT HERE!]

5.3 Pairwise correlation among research variables

Table 3 presents the correlation matrix for our research variables that are included in Eq. (1). For our measures of ICWO (*IC_D* and *IC_C*), they are highly correlated with each other (ρ = 0.946), and they are also significantly correlated with audit fees (*AFEE*). With respect to the structure of correlation among our explanatory variables, the following are noteworthy: First, there firm-specific risk variables (*LEVE, LOSS* and *ROA*) are highly correlated with each other, suggesting that risky firms in one dimension is likely to perform poorly in other dimensions too. Second, firm size (*LNTA*) is highly correlated three risk variables, suggesting that large firms are less likely to suffer financial risks. Third, none of the control variables are highly correlated with our two tests variables (*IC_D* and *IC_C*). Other variables that are highly correlated with firm-specific risk measures are *RNDTA* and *LAMDA*. Because

[14] The sum of the percentage (%) in Panel B of Table 2 is greater than 100 percent because many client firms receive ICWO in multiple categories as reported in Panel A of Table 2.

LAMDA is highly correlated with many other variables – especially with *BIG4*, *LNTA*, and *NGS*, we repeat empirical analyses with or without the variable.[15]

[INSERT TABLE 3 ABOUT HERE!]

5.4 Univariate analyses on audit fee changes for post-SOX period

We compare the audit fees across our sample period. The Panel A of Table 4 reports average audit fees for our total samples, for the samples that have WIC (*IC_D* = 1), and for the sample that have no WIC (*IC_D* = 0). Although it is not tabulated, the results show that the sample firms that have WIC pay higher audit fees every years during our sample period, compared with other firms. For example, in year 2000, the average audit fees for total sample is 5.5856 ($266,560). The firms having WIC pay the average fee of 5.6283 ($278,189), whereas the firms having no such problem pay the average fee of 5.5846 ($266,294).

[INSERT TABLE 4 ABOUT HERE!]

To examine the effect of the SOX on audit fees, we examine the change of audit fees from year 2002 to year 2003. The results are reported in Panel B of Table 4. For a proper comparison, we only use the samples that included in our dataset for both year 2002 and 2003. The results in Panel B of Table 4 reveal that the average (median) audit fees of the firms that have WIC increase by 0.3335 or 7.76% (0.2571 or 4.34%) during the period. At the same time, the average (median) fee of the firms that have no WIC increases by 0.2458 or 5.67% (0.1942 or 3.14%). The differences between the two are significant as reported in the bottom two rows of Panel B. These

[15] In performing regression analyses, we also measure the VIF values to examine potential multi-collineraity problems. But none of the VIF values are high enough to cause the problem. Thus, we do not separately report the values in the paper. We also drop all the control variables or one of the control variables that highly correlated with other control variable (one by one) and perform regression analyses with variables of interest, but the results are qualitatively similar.

results represent that the audit fees of the firms with WIC increase more during the period than those of the firms with no WIC.

In Panel C of Table 4, we report the average or median fee changes from year 2001 and 2002 to year 2003 and 2004. We again use only the continuous sample during the period for a proper comparison. The change of ratio is calculated by using the audit fees of year 2001 as the base value. Again, the results consistently suggest that the audit fee increase more for the firms that have WIC than for the firms that have no such weakness.

5.5 Analyses on the determinants of audit fees

With Eq. (1), we perform various regression analyses to examine the effect of WIC problems on audit fees. The empirical results are reported in Table 5. Reported t-values in the Table are on an adjusted basis using White's (1980) heteroskedasticity-consistent covariance matrix.[16] Note that models 1 and 2 do not include any variables of interests, to show the normal relationship between control variables and audit fees. Models 3 through 10 include the *IC* variable and models 4, 6, 8, and 10 have interactions with *IC* and *YR0304* dummy variable. The models 3 through 6 use the dummy variable for the measurement of WIC (*IC_D*), whereas models 7 through 10 use the continuous variable for the measurement of WIC (*IC_C*). Finally, models 2, 5, 6, 9, and 10 include the *LAMDA* (inverse Mills ratio) while the other models do not.

[INSERT TABLE 5 ABOUT HERE!]

The results in models 1 and 2 show that every control variables have significant coefficients in the expected directions, except *BTM*. Because we already

[16] We repeat all the regression tests performed in this study by calculating clustered standard error by each client firm. Because most of the results are qualitatively identical, we do not report them separately, except an exceptional case when the result is different.

discuss the expected directions of these control variables in previous section, we do not explain the results on them in this part. The explanatory power of the model 1 is 81.18%, which suggest very high ability of the control variables to explain the variations in the audit fees.

When we add *IC* variable in the model as in model 3, the coefficient of the variable is 0.0993 (t = 5.19), suggesting a significantly higher fees for the firms that receive ICWO.[17] When we scan the results in models 3 through 10, the coefficients of *IC* variable are significant only when the interaction term between *IC* and *YR0304* is not added to the model, while the interaction between *IC* and *YR0304* are always significant. In short, the results suggest that client firms with WIC start to pay higher audit fees from year 2003, while there is no significant fee difference in audit fees for the clients between with WIC and with no-WIC before year 2003.[18]

To examine the economic significance of the results, we set every variables except *IC* in their sample means and calculate average audit fees. The results in model 3 are translated into average audit fees of $335,510 for firms with no WIC, whereas firms with WIC pay $35,026 (1.71% in terms of logged value or 10.44% in terms of actual dollar value) more audit fees than the firms without WIC. This result suggests that WIC is economically important determinants of the audit fees as well.

5.6 Analyses on the interactions among firm-specific risks and auditor choice, and internal control weakness opinions

Although the documented results in Table 5 show that the firms with WIC pay higher audit fees, it is not clear if auditors charge fixed amount of higher fee for every

[17] The model 3 of Table 5 is comparable to the test performed by Hogan and Wilkins (2005), except that we include more control variables and use longer time period data.
[18] When we perform analyses with individual category of material weakness mentioned in Panel B of Table 2, we find that segregation of duties and property/equipment/lease are not significantly related to audit fees, while all the other categories are significantly associated with audit fees with positive signs.

firms with WIC or the magnitude of the fee increase is related to financial risks of the client firms. Thus, we use Eq. (2) and re-perform regression analyses. The empirical results are reported in Table 6. Note that models 1 through 4 use *IC_D* while models 5 through 8 use *IC_C* as a proxy for WIC. The models 1, 3, 5, and 7 in Table 6 have two-way interaction terms between firm-specific risk variables (*LEVE*, *LOSS*, and *ROA*) as well as Big 4 auditor indicator variable (*BIG4*) and *IC* variable, while models 2, 4, 6, and 8 have additional three-way interaction terms between two-way interaction terms and *YR0304* to examine if the relationship changes from year 2003. Models 3, 4, 7, and 8 include *LAMDA* as an additional control variable while the other models do not.

[INSERT TABLE 6 ABOUT HERE!]

In Table 6, the coefficients of *IC* variable are mostly not significant, suggest that audit fees do not uniformly increase before 2003 for the firms with WIC. The interaction between *IC* and *YR0304* yield mixed results. In models 2 and 4, the interaction term is positively significant. However, the interaction term is not significant in models 6 and 8. The sum of α_1 and α_2 is not different from zero in both models 2 and 4. Thus, the evidence of the fixed audit fee premiums and the changes of the premiums from 2003 for the firms with WIC are not clear in the above results.

For the leverage of the firms (*LEVE*), it is highly associated with the audit fees, as suggested by significant coefficients across all the models. The coefficient (β_2) of the interaction terms between *LEVE* and *IC* is also significantly positive in all models, suggesting that highly levered firms with WIC pay higher fees even before year 2003. However, the coefficient (β_3) of the three-way interaction term of (*LEVE * IC * YR0304*) is marginally smaller than zero in models 2, 4, 6, and 8. The marginally significant results become insignificant when we use the clustered standard error by

each client firm. For example, in model 2 (4) the t value of the β_3 becomes –1.50 (-1.64) when we use the clustered standard error. These results support the argument that there is no fee change with respect to leverage for the firms with WIC during the post-SOX period.

For *LOSS* variable, the coefficient of *LOSS* itself is significant with positive sign, implying that loss-making firms pay higher audit fees. The coefficient of two-way interaction term between *LOSS* and *IC* is not significant. However that of the three-way interaction term (*LOSS * IC * YR0304*) is marginally insignificant in models 2 and 4, but marginally significant in models 6 and 8. The results suggest that loss-making firms with multiple weaknesses start to pay marginally higher fee from year 2003. This finding is the evidence that auditor change the fee structure to compensate for the increased risk related to loss-making firms from the passage of SOX.

For *ROA* variable, we find that the coefficient of *ROA* itself is significant across different models but the coefficients of two-way or three-way interactions are not, suggesting that *ROA* does not have significantly change the fee structure with respect to the firms with WIC.

With respect to *BIG4*, we find that the coefficient of the variable itself is significantly positive across models. However, the coefficient of the two-way interaction is significant in models 2 and 4, but not in models 6 and 8. The results on three-way interactions are not significant too. Although they are not significant, in models 6 and 8, the sum of the coefficients of the two-way and the three-way interactions ($\beta_{11} + \beta_{12}$) are significantly different from zero in model 6 ($F = 3.61$ with $p = 0.0575$) and in model 8 ($F = 3.80$ with $p = 0.0512$). Thus, based on the above findings, it seems that the clients of Big 4 auditors with WIC pay higher audit fees

than the clients of non-Big 4 auditors with WIC, although it is not clear when the clients start to pay higher audit fees.

For control variables, as before, all the coefficients are significant in the expected direction except *BTM*. Thus, we do not repeat the discussion on them for the simplicity purpose.

In terms of the economic significance of the results, the results in model 2 are translated into the audit fee premium of $108,857 (4.74%) from year 2003 for average firms in our dataset with WIC, compared with average firms without the weakness.[19] For loss-making firms with WIC, the audit fees increase by 5.51% from year 2003, while it is only 4.20% for profit-making firms with WIC. For highly levered firms (*LEVE* = 1) with WIC, the audit fees increase by 5.91% on average from 2003, while it is only 3.61% for lowly levered firms (*LEVE* = 0.1) with WIC. For the clients of Big 4 auditors, the premium for the clients with WIC increase by 4.93% on average from 2003, whereas the premium increases by 3.17% for the clients of non-Big 4 auditors with WIC.

It may possible that the significant correlations among four variables of interest (*LEVE*, *LOSS*, *ROA*, and *BIG4*) as reported in Table 3 may cause insignificant results in some of the variables in Table 7. To examine this possibility, we run regression with only one variable of interest and two-way and three-way interactions with *IC* and *YR0304* variable after excluding all the variables that include any other variables of interest. For example, we examine the *LEVE* with the following Eq. (4), which exclude all the variables contain *LOSS*, *ROA*, and *BIG4*.

$$AFEE = \alpha_0 + \alpha_1 IC + \alpha_2 (IC * YR0304) + \beta_1 LEVE + \beta_2 (LEVE * IC) + \beta_3 (LEVE * IC * YR0304) + \gamma_1 LNTA + \gamma_2 NBS + \gamma_3 NGS + \gamma_4 EMPLOY + \gamma_5 INVREC + \gamma_6 ISSUE + \gamma_7 BTM + \gamma_8 FOREIGN + \gamma_9 EXORD \quad (4)$$

[19] The percentage increase is calculated from logged value of the audit fees. When we calculate the percentage increase by actual dollar value, the increase is 31.85%.

$$+ \gamma_{10} AUDCHG + \gamma_{11} LAMDA + \text{industry and year dummies} + \text{error term}$$

In this case, the coefficient of (*LEVE * IC * YR0304*) is not significantly different from zero in every models while the coefficient of (*LEVE * IC*) is significant at 1% level. For example, the β_2 is 0.2997 (t = 3.87), the β_3 is –0.0929 (t = -0.90), and the sum of β_2 and β_3 is greater than zero (F = 7.77 with p = 0.0053). The results suggest that highly-levered clients with WIC started to pay higher audit fees even before 2003 and continue to pay throughout post-SOX period, which is consistent with the findings in Table 6.

Similarly, we examine LOSS variable with the following Eq. (5).

$$\begin{aligned} AFEE = {} & \alpha_0 + \alpha_1 IC + \alpha_2 (IC * YR0304) + \beta_1 LOSS + \beta_2 (LOSS * IC) \\ & + \beta_3 (LOSS * IC * YR0304) + \gamma_1 LNTA + \gamma_2 NBS + \gamma_3 NGS + \gamma_4 EMPLOY \\ & + \gamma_5 INVREC + \gamma_6 ISSUE + \gamma_7 BTM + \gamma_8 FOREIGN + \gamma_9 EXORD \\ & + \gamma_{10} AUDCHG + \gamma_{11} LAMDA + \text{industry and year dummies} + \text{error term} \end{aligned} \quad (5)$$

When the *LOSS* is examined, the sum of the coefficients of (*LOSS * IC*) and (*LOSS * IC * YR0304*) become significantly positive at 5% level. For example, the β_2 is 0.0306 (t = 0.60), the β_3 is 0.0858 (t = 1.16), and the sum of β_2 and β_3 is greater than zero (F = 4.13 with p = 0.0413).[20] The results suggest that loss-making clients with WIC pay higher audit fee premiums only in post-SOX period, confirming the findings in models 6 and 8 of Table 6. When we examine *ROA* and *BIG4*, the results are not qualitatively different from those in Table 6. Thus, we do not separately report them for the simplicity purpose.

5.7 Analyses on the different effects of 'TYPE A' vs. 'TYPE B' weakness

[20] When we use clustered standard error by each firm, the sum of the coefficients are significant at 10% level (F = 3.43 with p = 0.0642).

The Hypothesis 5 predicts that the fee effect of type A weakness would be different from that of type B weakness. To examine this prediction, we use Eq. (3) for our analyses. The results using Eq. (3) are reported in Table 7. As reported in Tables 5 and 6, because the results using *IC_D* and *IC_C* are qualitatively similar, we report only the results using *IC_D* for the simplicity purpose. The models 1 and 2 in Table 7 have two-way interaction terms between firm-specific risk variables (*LEVE*, *LOSS*, and *ROA*) as well as Big 4 auditor indicator variable (*BIG4*) and IC variable, while models 3 and 4 have the three-way interaction terms between two-way interaction terms and *YR0304* as well as the two-way interaction terms to examine if the relationship changes from year 2003. These two-way and three-way interaction term all have also interaction variables with *IC_D*, thus become three-way and four-way interactions. Models 2 and 4 include *LAMDA* as an additional control variable while the other models do not.

[INSERT TABLE 7 ABOUT HERE!]

The results in Table 7 clearly show that all the results reported in Table 6 are consistent even when we use the Eq. (3). For example, the coefficients of (*IC * YR0304)*, (*LEVE * IC*), (*LOSS * IC * YR0304*), and (*BIG4 * IC * YR0304*) variables are significant. The coefficients of these variables are all significant in Table 6 too. However, any variables that contain *TYPEA* are far from significance, suggesting that there are no differential audit fee effects for type A versus type B weakness. This finding is similar to that of Hammersley et al. (2005). They also fail to find any significant differences in the market' reaction to the announcements of different types of WIC. These findings suggest that both auditors and investors focus on the existence of WIC itself rather than the exact reason of the WIC.

6. Sensitivity Analyses

We perform various sensitivity analyses to re-confirm the findings in this study. First, we perform analyses without 2002 data because the effect of SOX is not clear in the year if the law significantly influence the audit fee-setting mechanism right away. However, all the empirical results are qualitatively similar in that the coefficients of *LOSS* and *BIG4* are significant in the three-way interactions while the coefficient of *LEVE* is significant in the two-way interaction. In contrast, if we change cutoff year to year 2002 rather than 2003 and treat year 2002 like year 2003 and 2004's data, the results change slightly with respect to *BIG4* variable, while the results on *LOSS* and *LEVE* are qualitatively similar as before. When *IC_D* is used, the coefficient of neither (*BIG4 * IC*) nor (*BIG4 * IC * YR0304*) is significant and the sum of the coefficients of the two are not different from zero (F = 2.07 with p = 0.1499). However, when *IC_C* is used, the coefficient of three-way interaction for the *BIG4* becomes significant (β_{12} = 0.2386 with t=2.07 in model 6 of Table 6) while it was insignificant in Table 6.

Second, SOX specifically mentions that a company that is not required to file annual and quarterly reports on an accelerated basis (i.e., a U.S. company with market capitalization below $75 million) comply with the SOX 404 requirements for its first fiscal year ending on or after July 15, 2007. Thus, we report our tests after removing all the firms belong to this category because they are not required to report any WIC. However, auditors for some of the clients belong to this category voluntarily report the WIC for the client firms. Thus, we expand our samples into all the firms regardless of the firm size. When we perform the tests with 12,403 observations of the expanded sample, the results are slightly different with respect to the threw-way interaction for *BIG4* variable which becomes insignificant. However, because we do

not sure if some of these additional 3,316 observations have no WIC or auditors do not report the weakness voluntarily, we are not able to make any conclusions for this different result.

Third, we perform the tests with only continuous sample from year 2001 to 2004 or from year 2000 to 2004. The results are almost identical and thus not tabulated for the simplicity purpose.

Fourth, we perform tests without yearly dummies because yearly dummies could cause multicolinearity with *YR0304* variable. However, with or without the yearly dummies do not change the documented results.

Fifth, we use non-audit fees or total fees (the sum of audit and non-audit fees) as dependent variables rather than audit fees to examine if non-audit service fees can be affected by WIC. We find that among two-way interaction variables, only the coefficients of (*LOSS * IC*) and (*BIG4 * IC*) are positive and significant. Among three-way interactions, only the coefficient of (*BIG4 * IC * YR0304*) is negative and significant. For example, the coefficient (t value) of [*LOSS * IC*], [*BIG4 * IC*], and [*BIG4 * IC * YR0304*] is 0.1997 (1.90), 1.0672 (3.60), and –0.8323 (-2.15), respectively in model 2 when non-audit fees are used as a dependent variable. The sum of the coefficients of (*LOSS * IC*) and (*LOSS * IC * YR0304*) as well as the sum of the coefficients of (*BIG4 * IC*) and (*BIG4 * IC * YR0304*) are all not different from zero. The results suggest that auditors with loss-making clients with WIC and/or Big 4 auditors that audit clients with WIC perform more non-audit service and/or charger higher non-audit service fees for the client firms in pre-SOX period. However, this tendency disappears from year 2003, suggesting that non-audit service fees for clients with WIC are not different from those for clients with no-WIC at post-SOX period. Given the regulatory concerns that the provision of non-audit service could impair

auditor independence, these results suggest that auditors increase auditor independence from year 2003 when they audit the clients with WIC, or clients with WIC was upset due to the ICWO by auditors and decrease the non-audit service that they receive from the auditor.

Finally, to examine the comparability of our sample with the sample in used in prior studies, we replicate the study of Hogan and Wilkins (2005). Consistent with their findings, we find that performance-matched discretionary accruals (Kasznik 1999 or Kothari et al. 2005) are not significantly related to the internal control weakness problems. When our sample firms with WIC are matched to non-WIC firms in the same industry (2-digit SIC code) and the same year which have the closest return on assets, there was no significant differences in terms of the level of absolute discretionary accruals both in a univairate test and a multivariate test. These results suggest that the characteristics of our dataset are not different from those used in prior studies.

7. Conclusions

The SOX requires the implementation of many new rules and procedures. One element of SOX, concentrated in Sections 302 and 404, relates to the internal control over financial reporting. Essentially, SOX requires top management to establish, maintain, and regularly evaluate the effectiveness of internal control over financial reporting and auditors express their opinion on the quality of the internal control system of the client firms.

We identify 232 companies that have disclosed at least one material weakness in internal control in their SEC filings from November 2004 to August 2005 in response to the Section 404 requirements of SOX. Using these dataset, we examine

the association between audit fees and material weaknesses in internal control system of the client firms.

Our empirical results reveal that the firms with WIC tend to pay higher audit fees compared with the firms without WIC. The highly-levered firms with WIC tend to pay higher fees even pre-SOX period while the loss-making firms with WIC starts to pay higher fees from 2003. There is evidence that the clients of Big 4 auditors with WIC also pay higher audit fees, but it is not clear if they start to pay the higher fees from year 2003 or earlier than the year.

These results suggest that auditors either work more or charge higher risk premiums to compensate for the greater litigation risk for the clients with WIC. The results on the interactions between client-specific risk with WIC (*IC* variable in the regression models) suggest that the audit fee increase for the clients with WIC is not uniform increase for all the clients with WIC but the differential increase based on the client-specific risks.

In summary, the findings in this study provide important insight into the behaviour of auditors in response to strengthened legal environments and their pricing mechanism.

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Table 1
Distributions of variables

Variable	Mean	Std. Dev.	1%	50%	99%
AFEE	6.0176	1.2815	3.0445	5.9271	9.2003
IC_D	0.1164	0.3208	0	0	1
IC_C	0.2499	0.4504	0.0953	0.0953	2.0919
LEVE	0.5357	0.4809	0.0451	0.4801	2.7199
LOSS	0.4040	0.4907	0	0	1
ROA	-0.1057	0.4984	-2.1647	0.0239	0.3136
BIG4	0.8875	0.3160	0	1	1
LNTA	12.7503	2.0498	7.0121	12.7269	17.2799
NBS	1.0022	0.4826	0	0.6931	2.0794
NGS	0.9818	0.6318	0	1.0986	2.3026
EMPLOY	64.4305	76.5601	2	38.7814	370.1351
INVREC	0.2393	0.1823	0	0.2113	0.7629
ISSUE	0.4875	0.4999	0	0	1
BTM	0.5674	0.6145	0	0.4074	4
FOREIGN	0.4762	0.4995	0	0	1
EXORD	0.2298	0.4207	0	0	1
RNDTA	0.0681	0.1425	0	0.0038	1
AUDCHG	0.0868	0.2816	0	0	1
LAMDA	1.7880	0.2395	1.3793	1.7601	2.6212

Definitions of Variables

AFEE = natural log of audit fees;
IC_D = 1 if the auditor of the client firm received internal control weakness opinion, 0 otherwise;
IC_C = the log of one plus the number of internal control weakness categories that the client firm received.
LEVE = leverage (total liabilities divided by total assets);
LOSS = 1 if the firm reported a loss during the year, 0 otherwise;
ROA = return on assets;
BIG4 = 1 if the auditor is a Big 4 or predecessor auditor, 0 otherwise;
LNTA = log value of total assets;
NBS = log value of one plus number of business segments;
NGS = log value of one plus number of geographic segments;
EMPLOY = square root of the number of employees;
INVREC = inventory and receivables divided by total assets;
ISSUE = 1 if the sum of debt or equity issued during the past 3 years are more than 5% of the total assets, 0 otherwise;
BTM = book-to-market ratio, windsorized at 0 and 4;
FOREIGN = 1 if the firm pays any foreign income tax, 0 otherwise;
EXORD = 1 if the firm reports any extraordinary gains or losses, 0 otherwise;
ROA = return on assets;
RNDTA = research and development expenditure divided by total assets;
AUDCHG = 1 if auditor is in the first year of audit engagement, 0 otherwise;
LAMDA = inverse Mills ratio for the receipt of endogenous weak internal control opinion.

Table 2
Statistics on weakness in internal control

Panel A: Number of internal control weakness opinions

Number of weakness in internal control	Firms		Firm-year observations	
	Number	%	Number	%
0	2,202	89.73	8,029	88.36
1	28	1.14	121	1.33
2	73	2.97	311	3.42
3	48	1.96	209	2.30
4	43	1.75	178	1.96
5	20	0.82	76	0.84
6	17	0.69	65	0.72
7	9	0.37	41	0.45
8	3	0.12	11	0.12
9	5	0.20	21	0.23
10	6	0.24	25	0.28
Total	2,454	100.00	9,087	100.00

Panel B: Categorization of the weakness in internal control

Category	**Number of observations**	**%**
Application of GAAP/ accounting policies	345	32.61
Review of transactions	343	32.42
Tax-related issues	319	30.15
Staffing issues (levels, training, or expertise)	293	27.69
Property, equipment, lease	277	26.18
Policies / documentation issues	241	22.78
Financial statement closing process/ controls	233	22.02
Control environments	198	18.71
International operations / subsidiaries	172	16.26
IT & applications	138	13.04
Merger/acquisition-related issues	136	12.85
Inventory management	113	10.68
Revenue / billing	101	9.55
Segregation of duties	93	8.79
Employee benefit / pension	74	6.99
Others	333	31.47

Table 3
Pearson correlations among variables

Variable	*AFEE*	*IC_D*	*IC_C*	*LEVE*	*LOSS*	*ROA*	*BIG4*	*LNTA*	*NBS*	*NGS*	*EMP-LOY*	*INV-REC*	*ISSUE*	*BTM*	*FOR-EIGN*	*EXORD*	*RNDTA*	*AUD-CHG*
IC_D	0.059 (<0.001)																	
IC_C	0.065 (<0.001)	0.946 (<0.001)																
LEVE	0.027 (0.011)	-0.022 (0.033)	-0.021 (0.047)															
LOSS	-0.234 (<0.001)	0.035 (0.033)	0.047 (0.760)	0.120 (<0.001)														
ROA	0.312 (<0.001)	0.032 (0.003)	0.014 (0.177)	-0.441 (<0.001)	-0.440 (<0.001)													
BIG4	0.367 (<0.001)	0.039 (<0.001)	0.0933 (0.002)	-0.193 (<0.001)	-0.131 (<0.001)	0.298 (<0.001)												
LNTA	0.801 (<0.001)	0.030 (0.004)	0.024 (0.025)	-0.093 (<0.001)	-0.338 (<0.001)	0.476 (<0.001)	0.453 (<0.001)											
NBS	0.229 (<0.001)	0.029 (0.006)	0.031 (0.004)	0.029 (0.006)	-0.098 (<0.001)	0.118 (<0.001)	0.059 (<0.001)	0.218 (<0.001)										
NGS	0.409 (<0.001)	0.060 (<0.001)	0.076 (<0.001)	-0.045 (<0.001)	-0.142 (<0.001)	0.228 (<0.001)	0.162 (<0.001)	0.338 (<0.001)	0.120 (<0.001)									
EMP-LOY	0.594 (<0.001)	-0.008 (0.470)	-0.019 (0.073)	0.072 (<0.001)	-0.260 (<0.001)	0.210 (<0.001)	0.200 (<0.001)	0.683 (<0.001)	0.141 (<0.001)	0.189 (<0.001)								
INVREC	0.029 (0.006)	0.003 (0.811)	-0.002 (0.883)	0.079 (<0.001)	-0.229 (<0.001)	0.157 (<0.001)	-0.071 (<0.001)	-0.039 (<0.001)	0.074 (<0.001)	0.148 (<0.001)	0.083 (<0.001)							
ISSUE	-0.044 (<0.001)	-0.012 (0.245)	-0.015 (0.160)	0.123 (<0.001)	0.126 (<0.001)	-0.158 (<0.001)	-0.047 (<0.001)	-0.054 (<0.001)	-0.033 (0.002)	-0.111 (<0.001)	-0.068 (<0.001)	-0.110 (<0.001)						
BTM	-0.063 (<0.001)	0.020 (0.059)	0.022 (0.037)	-0.128 (<0.001)	0.058 (<0.001)	0.088 (<0.001)	0.021 (0.049)	0.028 (0.009)	0.069 (<0.001)	0.006 (0.588)	-0.012 (0.239)	0.126 (<0.001)	-0.111 (<0.001)					
FOR-EIGN	0.483 (<0.001)	0.055 (<0.001)	0.066 (<0.001)	-0.034 (0.001)	-0.210 (<0.001)	0.228 (<0.001)	0.183 (<0.001)	0.407 (<0.001)	0.139 (<0.001)	0.595 (<0.001)	0.270 (<0.001)	0.156 (<0.001)	-0.119 (<0.001)	-0.022 (0.035)				
EXORD	0.223 (<0.001)	0.024 (<0.025)	0.027 (0.009)	0.122 (<0.001)	0.035 (<0.001)	0.047 (<0.001)	0.052 (<0.001)	0.215 (<0.001)	0.136 (<0.001)	0.072 (<0.001)	0.172 (<0.001)	-0.025 (0.016)	0.017 (0.099)	0.073 (<0.001)	0.082 (<0.001)			
RNDTA	-0.252 (<0.001)	-0.040 (<0.001)	-0.024 (0.023)	0.031 (0.003)	0.365 (<0.001)	-0.488 (<0.001)	-0.078 (<0.001)	-0.389 (<0.001)	-0.168 (<0.001)	-0.166 (<0.001)	-0.250 (<0.001)	-0.216 (<0.001)	0.117 (<0.001)	-0.179 (<0.001)	-0.164 (<0.001)	-0.120 (<0.001)		
AUD-CHG	-0.104 (<0.001)	0.023 (0.047)	0.020 (0.052)	0.043 (<0.001)	0.049 (<0.001)	-0.042 (<0.001)	-0.155 (<0.001)	-0.090 (<0.001)	-0.012 (0.251)	-0.019 (0.071)	-0.065 (<0.001)	0.006 (0.599)	-0.012 (0.275)	0.040 (<0.001)	-0.045 (<0.001)	0.017 (0.098)	0.007 (0.495)	
LAMDA	-0.609 (<0.001)	-0.093 (<0.001)	-0.093 (<0.001)	0.358 (<0.001)	0.020 (0.056)	-0.472 (<0.001)	-0.650 (<0.001)	-0.725 (<0.001)	-0.219 (<0.001)	-0.473 (<0.001)	-0.387 (<0.001)	0.014 (0.168)	0.055 (<0.001)	-0.085 (<0.001)	-0.519 (<0.001)	-0.130 (<0.001)	0.225 (<0.001)	-0.020 (0.058)

Table 4
Audit fee difference between pre-SOX and post-SOX period

Panel A: Year-by-year mean audit fees for total sample

Year	N	Total sample	*IC_D* = 1	*IC_D* = 0
2000	1,626	5.5856	5.6283	5.5846
2001	1,741	5.6573	5.7235	5.6365
2002	1,875	5.8119	5.9542	5.7759
2003	1,952	6.0614	6.2968	6.0076
2004	1,893	6.8785	7.1018	6.7679

Panel B: Audit fee changes from year 2002 to year 2003 for continuous sample

	N		Amount	Ratio (%)
IC_D = 1	228	Mean	0.3335	7.76
		Median	0.2571	4.34
IC_D = 0	1,697	Mean	0.2458	5.67
		Median	0.1942	3.14
Difference		t value	2.40***	1.52*
		z value	2.64***	3.08***

Table 4 (Continued)

Panel C: Average audit fee changes from year 2001 and 2002 to year 2003 and 2004 for continuous sample

	N		Amount	Ratio (%)
IC_D = 1	215	Mean	0.9408	17.70
		Median	0.9571	16.76
IC_D = 0	1,378	Mean	0.6988	12.49
		Median	0.6943	12.02
Difference		t value	7.47***	7.35***
		z value	4.59***	6.47***

Amount represents the change of the log value of audit fees (in thousand of dollars) and ratio represents the change of the log value of audit fee scaled by the log value of the audit fee at the start of the period. *, **, and *** denote p-value<10%, p-value<5%, and p-value<1%, respectively with one-tailed tests.

Table 5
OLS Regression analyses on determinants of audit fees

$$AFEE = \alpha_0 + \alpha_1 IC + \alpha_2 (IC * YR0304) + \beta_1 LEVE + \beta_2 LOSS + \beta_3 ROA + \beta_4 BIG4 + \gamma_1 LNTA + \gamma_2 NBS + \gamma_3 NGS + \gamma_4 EMPLOY + \gamma_5 INVREC + \gamma_6 ISSUE + \gamma_7 BTM + \gamma_8 FOREIGN + \gamma_9 EXORD + \gamma_{10} AUDCHG + \gamma_{11} LAMDA + \text{industry and year dummies} + \text{error term}$$

		Without WIC		***IC = IC_D***				***IC = IC_C***			
Variables	**Predicted sign**	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**	**Model 9**	**Model 10**
IC	+			0.0993	-0.0208	0.1035	-0.0164	0.0844	-0.0032	0.0876	-0.0000
				(5.19***)	(-0.84)	(5.42***)	(-0.66)	(6.11***)	(-0.18)	(6.36***)	(-0.00)
*IC * YR0304*	?				0.2763		0.2756		0.1997		0.1997
					(7.41***)		(7.40***)		(7.43***)		(7.44***)
LEVE	+	0.1982	0.1582	0.1992	0.1982	0.1564	0.1557	0.1998	0.1987	0.1562	0.1551
		(10.26***)	(7.26***)	(10.33***)	(10.33***)	(7.19***)	(7.19***)	(10.36***)	(10.37**)	(7.18***)	(7.17***)
LOSS	+	0.1529	0.2079	0.1485	0.1473	0.2073	0.2057	0.1475	0.1461	0.2074	0.2060
		(10.49***)	(10.22***)	(10.22***)	(10.18***)	(10.20***)	(10.17**)	(10.16***)	(10.11***)	(10.22***)	(10.19***)
ROA	-	-0.0707	-0.0591	-0.0714	-0.0743	-0.0590	-0.0620	-0.0700	-0.0738	-0.0573	-0.0611
		(-2.99***)	(-2.48**)	(-3.02***)	(-3.16***)	(-2.48**)	(-2.62**)	(-2.96***)	(-3.14***)	(-2.41**)	(-2.58***)
BIG4	+	0.2530	0.3455	0.2504	0.2516	0.3494	0.3499	0.2508	0.2520	0.3516	0.3529
		(9.91***)	(9.63***)	(9.77***)	(9.89***)	(9.76***)	(9.84***)	(9.80***)	(9.92***)	(9.83***)	(9.93***)
LNTA	+	0.4139	0.4338	0.4139	0.4148	0.4352	0.4359	0.4135	0.4146	0.4352	0.4362
		(65.26***)	(54.43***)	(65.24***)	(65.64***)	(54.55***)	(54.82**)	(65.15***)	(65.60***)	(54.57***)	(54.86***)
NBS	+	0.1137	0.1289	0.1119	0.1113	0.1282	0.1274	0.1115	0.1112	0.1280	0.1277
		(8.97***)	(9.62***)	(8.88***)	(8.86***)	(9.62***)	(9.59***)	(8.86***)	(8.87***)	(9.62***)	(9.64***)
NGS	+	0.1420	0.1602	0.1397	0.1391	0.1591	0.1584	0.1385	0.1382	0.1582	0.1580
		(11.29***)	(11.73***)	(11.13***)	(11.13***)	(11.69***)	(11.69***)	(11.05***)	(11.09***)	(11.64***)	(11.69***)
EMPLOY	+	0.0018	0.0017	0.0018	0.0018	0.0018	0.0017	0.0018	0.0018	0.0018	0.0018
		(12.00***)	(11.61***)	(12.11***)	(12.07***)	(11.70***)	(11.66***)	(12.17***)	(12.12**)	(11.75***)	(11.70***)
INVREC	+	0.5468	0.5836	0.5495	0.5496	0.5891	0.5889	0.5480	0.5485	0.5882	0.5887
		(12.99***)	(13.50***)	(13.04***)	(13.10***)	(13.61***)	(13.67***)	(13.02***)	(13.09***)	(13.61***)	(13.68***)
ISSUE	+	0.0239	0.0307	0.0238	0.0239	0.0311	0.0310	0.0242	0.0237	0.0316	0.0311
		(1.96**)	(2.51**)	(1.96**)	(1.97*)	(2.54**)	(2.55**)	(1.99**)	(1.95**)	(2.59***)	(2.55**)

Table 5 (Continued)

BTM	-	-0.0109	-0.0121	-0.0109	-0.0115	-0.0122	-0.0128	-0.0112	-0.0117	-0.0125	-0.0130
		(-1.06)	(-1.17)	(-1.05)	(-1.12)	(-1.17)	(-1.24)	(-1.08)	(-1.14)	(-1.21)	(-1.27)
FOREIGN	+	0.2584	0.2948	0.2545	0.2528	0.2934	0.2914	0.2538	0.2519	0.2933	0.2914
		(16.31***)	(16.04***)	(16.04***)	(16.01***)	(15.97***)	(15.94***)	(16.03***)	(15.98***)	(15.99***)	(15.96***)
EXORD	+	0.1694	0.1670	0.1684	0.1679	0.1658	0.1653	0.1677	0.1671	0.1650	0.1643
		(11.46***)	(11.30***)	(11.41***)	(11.41***)	(11.24***)	(11.24***)	(11.37***)	(11.35***)	(11.19***)	(11.17***)
RNDTA	+	0.4634	0.4495	0.4677	0.4655	0.4528	0.4508	0.4674	0.4663	0.4523	0.4512
		(7.70***)	(7.42***)	(7.77***)	(7.77***)	(7.47***)	(7.48***)	(7.77***)	(7.79***)	(7.47***)	(7.49***)
AUDCHG	-	-0.1091	-0.0719	-0.1119	-0.1150	-0.0722	-0.0756	-0.1122	-0.1148	-0.0717	-0.0743
		(-4.10***)	(-2.53**)	(-4.21***)	(-4.34***)	(-2.54**)	(-2.67***)	(-4.22***)	(-4.33***)	(-2.53**)	(-2.63***)
LAMDA	?		0.3352			0.3596	0.3569			0.3660	0.3661
			(3.85***)			(4.13***)	(4.12***)			(4.21***)	(4.23***)
Intercept	?	0.5558	-0.4376	0.5498	0.5231	-0.5162	-0.5349	0.5448	0.5055	-0.5405	-0.5801
		(7.54***)	(-1.64)	(7.46***)	(7.12***)	(-1.94*)	(-2.01**)	(7.39***)	(6.87***)	(-2.03**)	(-2.18**)
Industry dummies		Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Year dummies		Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
N		9,087	9,087	9,087	9,087	9,087	9,087	9,087	9,087	9,087	9,087
Adjusted R^2		0.8118	0.8121	0.8123	0.8134	0.8127	0.8138	0.8126	0.8138	0.8130	0.8142

All t-statistics in parentheses are calculated using White's (1980) consistent standard error estimates to correct for heteroskedasticity. *, **, and *** denotes p-value<10%, p-value<5%, and p-value<1%, respectively with two-tailed tests. *IC_D:* 1 if the company receives internal control weakness opinion in fiscal year 2004 and 0 otherwise. *IC_C:* log 1.1 plus the number of internal control weakness categories included in audit opinion of fiscal year 2004. *YR0304*: 1 if the fiscal year is 2003 or 2004 and 0 otherwise. See Table 1 for the definitions of other variables.

Table 6
OLS Regression analyses on interactions with firm-specific risks and internal control weakness

$$AFEE = \alpha_0 + \alpha_1 IC + \alpha_2 (IC * YR0304) + \beta_1 LEVE + \beta_2 (LEVE * IC) + \beta_3 (LEVE * IC * YR0304) + \beta_4 LOSS + \beta_5 (LOSS * IC) + \beta_6 (LOSS * IC * YR0304) + \beta_7 ROA + \beta_8 (ROA * IC) + \beta_9 (ROA * IC * YR0304) + \beta_{10} BIG4 + \beta_{11} (BIG4 * IC) + \beta_{12} (BIG4 * IC * YR0304) + \gamma_1 LNTA + \gamma_2 NBS + \gamma_3 NGS + \gamma_4 EMPLOY + \gamma_5 INVREC + \gamma_6 ISSUE + \gamma_7 BTM + \gamma_8 FOREIGN + \gamma_9 EXORD + \gamma_{10} AUDCHG + \gamma_{11} LAMDA + industry\ and\ year\ dummies + error\ term$$

		IC = IC_D				***IC = IC_C***			
Variables	**Predicted Sign**	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**
IC	+	-0.1244	-0.4418	-0.1205	-0.4484	-0.0436	-0.1633	-0.0413	-0.1688
		(-1.19)	(-2.39**)	(-1.15)	(-2.43**)	(-0.60)	(-1.31)	(-0.57)	(-1.36)
*IC * YR0304*	+		0.4812		0.4983		0.1754		0.1868
			(2.27**)		(2.35**)		(1.26)		(1.34)
LEVE	+	0.1841	0.1839	0.1396	0.1385	0.1696	0.1702	0.1240	0.1242
		(9.33***)	(9.36***)	(6.28***)	(6.25***)	(8.03***)	(8.15***)	(5.27***)	(5.33***)
*LEVE * IC*	+	0.2669	0.3358	0.2730	0.3483	0.1715	0.2139	0.1761	0.2222
		(4.57***)	(4.19***)	(4.68***)	(4.35***)	(3.92***)	(3.72***)	(4.03***)	(3.85***)
*LEVE * IC * YR0304*	+		-0.1785		-0.1929		-0.1325		-0.1409
			(-1.69*)		(-1.82*)		(-1.81*)		(-1.82*)
LOSS	+	0.1413	0.1370	0.2018	0.1989	0.1387	0.1327	0.2001	0.1948
		(9.24***)	(8.97***)	(9.68***)	(9.56***)	(8.48***)	(8.12***)	(9.25***)	(9.04***)
*LOSS * IC*	+	0.0073	-0.0441	0.0074	-0.0471	0.0172	0.0002	0.0176	-0.0019
		(0.17)	(-0.83)	(0.17)	(-0.90)	(0.57)	(0.01)	(0.59)	(-0.05)
*LOSS * IC * YR0304*	+		0.1273		0.1319		0.0991		0.1026
			(1.50)		(1.56)		(1.71*)		(1.77*)
ROA	-	-0.0730	-0.0735	-0.0603	-0.0605	-0.0734	-0.0786	-0.0603	-0.0650
		(-3.00***)	(-3.04***)	(-2.45**)	(-2.48**)	(-2.88***)	(-3.14***)	(-2.34**)	(-2.58***)
*ROA * IC*	-	-0.0454	-0.0820	-0.0473	-0.0835	-0.0016	-0.0298	-0.0025	-0.0310
		(-0.62)	(-0.99)	(-0.65)	(-1.02)	(-0.04)	(-0.73)	(-0.07)	(-0.76)
*ROA * IC * YR0304*	-		-0.1182		-0.1284		0.1336		0.1273
			(-0.65)		(-0.70)		(1.03)		(0.98)

Table 6 (Continued)

BIG4	+	0.2442	0.2390	0.3468	0.3438	0.2444	0.2347	0.3488	0.3397
		(9.50***)	(9.35***)	(9.62***)	(9.58***)	(8.86***)	(8.51***)	(9.30***)	(9.11***)
*BIG4 * IC*	+	0.0900	0.2808	0.0869	0.2875	0.0361	0.0494	0.0344	0.0552
		(0.91)	(2.67***)	(0.88)	(2.73***)	(0.53)	(0.69)	(0.51)	(0.77)
*BIG4 * IC * YR0304*	+		-0.1703		-0.1843		0.0696		0.0597
			(-0.85)		(-0.92)		(0.80)		(0.69)
LNTA	+	0.4122	0.4135	0.4341	0.4358	0.4121	0.4135	0.4343	0.4359
		(64.86***)	(65.29***)	(54.47**)	(54.79***)	(64.88**)	(65.33***)	(54.54**)	(54.88***)
NBS	+	0.1126	0.1129	0.1294	0.1300	0.1120	0.1124	0.1290	0.1296
		(8.92***)	(8.99***)	(9.71***)	(9.80***)	(8.89***)	(8.96***)	(9.69***)	(9.79***)
NGS	+	0.1389	0.1387	0.1589	0.1591	0.1377	0.1380	0.1580	0.1585
		(11.08***)	(11.11***)	(11.69***)	(11.77***)	(11.00***)	(11.10**)	(11.64***)	(11.77***)
EMPLOY	+	0.0018	0.0018	0.0018	0.0017	0.0018	0.0018	0.0018	0.0017
		(12.11***)	(12.04**)	(11.68***)	(11.61***)	(12.17***)	(12.11**)	(11.74**)	(11.68***)
INVREC	+	0.5424	0.5433	0.5830	0.5848	0.5430	0.5419	0.5842	0.5836
		(12.87***)	(12.96***)	(13.48***)	(13.59***)	(12.91***)	(12.96***)	(13.53***)	(13.60***)
ISSUE	+	0.0225	0.0229	0.0299	0.0305	0.0232	0.0233	0.0307	0.0310
		(1.85*)	(1.89*)	(2.45**)	(2.51**)	(1.91*)	(1.93*)	(2.52**)	(2.55**)
BTM	-	-0.0106	-0.0104	-0.0118	-0.0117	-0.0109	-0.0108	-0.0123	-0.0120
		(-1.02)	(-1.01)	(-1.15)	(-1.14)	(-1.05)	(-1.05)	(-1.18)	(-1.17)
FOREIGN	+	0.2546	0.2522	0.2947	0.2932	0.2535	0.2509	0.2943	0.2920
		(16.04***)	(15.97***)	(16.03***)	(16.01***)	(16.00***)	(15.94***)	(16.03***)	(15.99***)
EXORD	+	0.1668	0.1661	0.1641	0.1633	0.1667	0.1658	0.1639	0.1629
		(11.30***)	(11.27***)	(11.12***)	(11.09***)	(11.30***)	(11.23***)	(11.11***)	(11.04***)
RNDTA	+	0.4597	0.4613	0.4440	0.4454	0.4591	0.4523	0.4432	0.4364
		(7.67***)	(7.75***)	(7.36***)	(7.43***)	(7.67***)	(7.67***)	(7.35***)	(7.35***)
AUDCHG	-	-0.1112	-0.1140	-0.0702	-0.0723	-0.1117	-0.1121	-0.0701	-0.0702
		(-4.16***)	(-4.30***)	(-2.46**)	(-2.55**)	(-4.18***)	(-4.22***)	(-2.46**)	(-2.48**)
LAMDA	?			0.3711	0.3791			0.3771	0.3806
				(4.27***)	(4.37***)			(4.34***)	(4.39***)

Table 6 (Continued)

Intercept	?	0.5930 (8.00***)	0.5664 (7.67***)	-0.5063 (-1.90*)	-0.5567 (-2.09**)	0.5928 (7.91***)	0.5604 (7.50***)	-0.5241 (-1.97**)	-0.5669 (-2.13**)
Industry dummies		Included	Included	Included	Included	Included	Included	Included	Included
Year Dummies		Included	Included	Included	Included	Included	Included	Included	Included
N		9,087	9,087	9,087	9,087	9,087	9,087	9,087	9,087
Adjusted R^2		0.8128	0.8142	0.8132	0.8146	0.8130	0.8144	0.8134	0.8148

All t-statistics in parentheses are calculated using White's (1980) consistent standard error estimates to correct for heteroskedasticity. *, **, and *** denotes p-value<10%, p-value<5%, and p-value<1%, respectively with two-tailed tests. *IC_D:* 1 if the company receives internal control weakness opinion in fiscal year 2004 and 0 otherwise. *IC_C:* log 1.1 plus the number of internal control weakness categories included in audit opinion of fiscal year 2004. *YR0304*: 1 if the fiscal year is 2003 or 2004 and 0 otherwise. See Table 1 for the definitions of other variables.

Table 7
The effect of 'TYPE A' weakness in internal control on audit fees

$$AFEE = \alpha_0 + \alpha_1 IC + \alpha_2 (IC*TYPEA) + \alpha_3 (IC*YR0304) + \alpha_4 (IC*YR0304*TYPEA) + \beta_1 LEVE + \beta_2 (LEVE*IC) + \beta_3 (LEVE*IC*TYPEA) + \beta_4 (LEVE*IC*YR0304) + \beta_5 (LEVE*IC*YR0304*TYPEA) + \beta_6 LOSS + \beta_7 (LOSS*IC) + \beta_8 (LOSS*IC*TYPEA) + \beta_9 (LOSS*IC*YR0304) + \beta_{10} (LOSS*IC*YR0304*TYPEA) + \beta_{11} ROA + \beta_{12} (ROA*IC) + \beta_{13} (ROA*IC*TYPEA) + \beta_{14} (ROA*IC*YR0304) + \beta_{15} (ROA*IC*YR0304*TYPEA) + \beta_{16} BIG4 + \beta_{17} (BIG4*IC) + \beta_{18} (BIG4*IC*TYPEA) + \beta_{19} (BIG4*IC*YR0304) + \beta_{20} (BIG4*IC*YR0304*TYPEA) + \gamma_1 LNTA + \gamma_2 NBS + \gamma_3 NGS + \gamma_4 EMPLOY + \gamma_5 INVREC + \gamma_6 ISSUE + \gamma_7 BTM + \gamma_8 FOREIGN + \gamma_9 EXORD + \gamma_{10} AUDCHG + \gamma_{11} LAMDA + industry\ and\ year\ dummies + error\ term$$

	Model 1	**Model 2**	**Model 3**	**Model 4**
IC_D	-0.1398	-0.1449	-0.1048	-0.1108
	(-1.14)	(-1.17)	(-0.88)	(-0.93)
*IC_D*TYPEA*	0.0700	0.0873	0.0042	0.0201
	(0.34)	(0.43)	(0.02)	(0.09)
*IC_D*YR0304*			-0.2462	-0.2439
			(-3.67***)	(-3.65***)
*IC_D*YR0304*TYPEA*			0.1291	0.1299
			(1.25)	(1.26)
LEVE	0.1841	0.1380	0.1831	0.1373
	(9.33***)	(6.21***)	(9.32***)	(6.20***)
*LEVE*IC_D*	0.2972	0.3091	0.2607	0.2773
	(3.93***)	(4.10***)	(2.83***)	(3.00***)
*LEVE*IC_D*TYPEA*	-0.1019	-0.1168	-0.0225	-0.0409
	(-0.92)	(-1.06)	(-0.15)	(-0.28)
*LEVE*IC_D*YR0304*			0.0074	-0.0056
			(0.06)	(-0.04)
*LEVE*IC_D*YR0304*TYPEA*			-0.0714	-0.0576
			(-0.32)	(-0.26)
LOSS	0.1416	0.2043	0.1368	0.1991
	(9.26***)	(9.79***)	(8.95***)	(9.56***)
*LOSS*IC_D*	0.0283	0.0299	-0.0463	-0.0505
	(0.46)	(0.48)	(-0.61)	(-0.67)
*LOSS*IC_D*TYPEA*	-0.0470	-0.4660	-0.0361	-0.0295
	(-0.53)	(-0.53)	(-0.34)	(-0.28)
*LOSS*IC_D*YR0304*			0.2551	0.2697
			(2.10**)	(2.23**)
*LOSS*IC_D*TY0304*TYPEA*			-0.1465	-0.1676
			(-0.86)	(-0.99)
ROA	-0.0727	-0.0595	-0.0735	-0.0604
	(-2.98***)	(-2.42**)	(-3.04***)	(-2.48**)
*ROA*IC_D*	0.0318	0.0499	-0.0906	-0.0772
	(0.22)	(0.35)	(-0.54)	(-0.47)
*ROA*IC_D*TYPEA*	-0.0860	-0.1089	0.0335	0.0175
	(-0.52)	(-0.67)	(0.18)	(0.09)
*ROA*IC_D*YR0304*			0.2277	0.2453
			(0.64)	(0.70)
*ROA*IC_D*YR0304*TYPEA*			-0.5745	-0.6206
			(-1.42)	(-1.54)

Table 7 (Continued)

BIG4	0.2444	0.3507	0.2405	0.3460
	(9.51***)	(9.73***)	(9.41***)	(9.64***)
*BIG4*IC_D*	0.0381	0.0389	-0.0645	-0.0609
	(0.31)	(0.32)	(-0.53)	(-0.50)
*BIG4*IC_D*TYPEA*	0.1151	0.1101	0.1477	0.1413
	(0.61)	(0.59)	(0.68)	(0.65)
*BIG4*IC_D*YR0304*			0.3001	0.2959
			(3.37***)	(3.33***)
*BIG4*IC_D*YR0304*TYPEA*			0.0011	0.0055
			(0.01)	(0.04)
LNTA	0.4122	0.4349	0.4133	0.4359
	(64.83***)	(54.40***)	(65.22***)	(54.68***)
NBS	0.1116	0.1288	0.1114	0.1285
	(8.85***)	(9.68***)	(8.87***)	(9.69***)
NGS	0.1385	0.1592	0.1377	0.1583
	(11.04***)	(11.70***)	(11.02***)	(11.69***)
EMPLOY	0.0018	0.0018	0.0018	0.0017
	(12.10***)	(11.66***)	(12.03***)	(11.59***)
INVREC	0.5405	0.5826	0.5404	0.5823
	(12.81***)	(13.45***)	(12.89***)	(13.52***)
ISSUE	0.0224	0.0301	0.0230	0.0306
	(1.84*)	(2.47**)	(1.90*)	(2.52**)
BTM	-0.0120	-0.0134	-0.0116	-0.0129
	(-1.15)	(-1.29)	(-1.13)	(-1.26)
FOREIGN	0.2545	0.2960	0.2528	0.2940
	(16.01***)	(16.09***)	(15.97***)	(16.04***)
EXORD	0.1661	0.1632	0.1663	0.1634
	(11.23***)	(11.04***)	(11.25***)	(11.06***)
RNDTA	0.4590	0.4427	0.4581	0.4418
	(7.66***)	(7.34***)	(7.70***)	(7.38***)
AUDCHG	-0.1123	-0.0700	-0.1114	-0.0694
	(-4.20***)	(-2.46**)	(-4.18***)	(-2.44**)
LAMDA		0.3844		0.3817
		(4.41***)		(4.39***)
Intercept	0.5956	-0.5430	0.5618	-0.5688
	(8.02***)	(-2.03**)	(7.58***)	(-2.13**)
Industry dummies	Included	Included	Included	Included
Year dummies	Included	Included	Included	Included
N	9,087	9,087	9,087	9,087
Adjusted R^2	0.8130	0.8134	0.8143	0.8147

All t-statistics in parentheses are calculated using White's (1980) consistent standard error estimates to correct for heteroskedasticity. *, **, and *** denotes p-value<10%, p-value<5%, and p-value<1%, respectively with two-tailed tests. *IC_D:* 1 if the company receives internal control weakness opinion in fiscal year 2004 and 0 otherwise. *YR0304*: 1 if the fiscal year is 2003 or 2004 and 0 otherwise. See Table 1 for the definitions of other variables. *TYPEA*: 1 if the client firm receive type A weakness opinion and 0 otherwise. The 'TYPE A' weakness in internal control implies the weakness related to controls over specific account balances or transaction-level processes.